(12) INTERNATIONAL APPLICATION PUBLISHED IN ACCORDANCE WITH THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

[bar code]

(10) International publication number
WO 01/50763 A1

(43) Date of international publication
12 July 2001 (12.07.2001)

PCT

(51) International patent classification[7]: H04N 7/24

(21) International application number: PCT/FR00/03740

(22) Date of international filing:
29 December 2000 (29.12.2000)

(25) Filing language: French

(26) Publication language: French

(30) Priority information:
99/16744 30 December 1999 (20.12.1999) FR
00/02259 23 February 2000 (23.02.2000) FR

(71) Filed by *(for all designated States except the U.S.)*: **THOMSON MULTIMEDIA** [FR/FR]; 46 quai Alponse Le Gallo, F-92100 Boulogne Billancourt (FR).

(72) Inventors; and

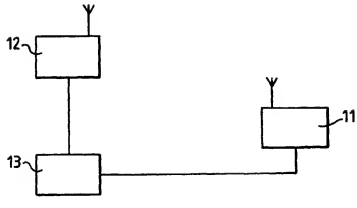
(75) Inventors/Filers *(for U.S. only)*: **PATRY, Nadine** [FR/FR]; 46 quai Alponse Le Gallo, F-92100 Boulogne Billancourt (FR). **CARBONNEL, Louis-Xavier** [FR/FR]; Thomson Multimedia, 46 quai Alponse Le Gallo, F-92100 Boulogne Billancourt cedex (FR). **LESENNE, Laurent** [FR/FR]; Thomson Multimedia, 46 quai Alponse Le Gallo, F-92100 Boulogne Billancourt cedex (FR).

(74) Attorney: **KOHRS, Martin**; Thomson Multimedia, 46 quai Alponse Le Gallo, F-92100 Boulogne Billancourt cedex (FR).

(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

[Continued on next page]

(54) **Title:** METHOD FOR MANAGING AN AUXILIARY PROGRAM BROADCAST WITH A MAIN PROGRAM AND ASSOCIATED RECEIVER



(57) **Abstract:** The invention concerns a method for managing an auxiliary program broadcast along with a main program wherein it is identified by a locating reference. The method comprises a detection step followed by a step which consists of reading the auxiliary program, a step which consists of storing said program, and comprises a further step which consists of displaying data related to the auxiliary program, which step is carried out as from a validity start date. The invention also concerns a television broadcast receiving set for receiving programs through a broadcast network and implementing said method.

WO 01/50763 A1 [bar code]

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

— *With international search report*

— *Prior to the expiration of the period provided for amending the claims; will be republished if changes are received.*

For the two-letter codes and other abbreviations, see "Explanatory notes about codes and abbreviations" at the beginning of each ordinary issue of the PCT Gazette

Method for managing an auxiliary program broadcast with a main program and associated receiver

The present invention concerns a method of processing an auxiliary program broadcast along with a main program. It also concerns a receiver for implementing said method.

In the field of broadcasting, particularly by Hertzian waves, programs (commonly called transmissions) are sent out from a transmitter to a plurality of receiving terminals. Also known are radio programs, television programs, and more recently, interactive television programs.

Thus, within the context of the broadcasting of a main program, interactive television offers access to an auxiliary program that is not directly displayed. To do this, a marker such as an icon identifying the auxiliary program is displayed as an overprint on the screen. A user who wishes to access the latter program produces a command to that effect, in general by means of a remote control associated with a television on which he is watching the main program. As an example, a main program consisting of an advertising message can be associated with an auxiliary program offering the documentation on the product presented in that message. It should be further noted that the auxiliary program is not necessarily a video sequence, but can also consist of a software application or a combination of the two.

Generally, the marker of an auxiliary program appears only during the broadcast of the respective main program. Indeed, it does not seem advisable to clutter the screen of the television with a plurality of icons from previously broadcast auxiliary programs. It would be necessary to broadcast these auxiliary programs during the entire time the respective markers are displayed, which would constitute a significant overload at the level of the broadcast.

It seems, therefore, that a user who wishes to access an auxiliary program should be able to control his television during the broadcast of the main program. This restriction is not always satisfactory, for example when the remote control is out of reach.

Thus, an object of the present invention is a processing method that makes it possible to have an auxiliary program when it is not possible to intervene during the broadcast thereof.

The invention proposes a method of managing auxiliary programs that are broadcast along with main programs, comprising:

- a step of detecting auxiliary information transmitted by a broadcast network,
- a step of extracting said auxiliary information,
- a step of storing said auxiliary information.

characterized in that it further comprises a step of displaying the auxiliary information during the broadcast of the main program, the step of displaying the information being performed beginning on the validity start date, the displayed information allowing the user to access the respective auxiliary program.

Advantageously, the storage step is preceded by a selection step.

As an example, the auxiliary program incorporating a descriptor, the selection step preserves this auxiliary program in case at least one predetermined field is present in the descriptor.

A step to delete the auxiliary program is provided.

Thus, when the auxiliary program incorporates an end-of-validity date, this deletion step erases it when said date is exceeded.

Naturally, the method comprises a step of transmitting an auxiliary program that will be stored in the terminal.

Preferably, each of the stored auxiliary programs being assigned a title, the transmission step is preceded by a step of presentation to the user that offers at least two titles.

Following this, the method comprises a step of associating the transmitted auxiliary program with the selected title.

If desired, the transmission step is followed by a step offering the deletion of the transmitted auxiliary program.

The invention also concerns a terminal comprising means for implementing the method described above.

The present invention will now be described in more detail with examples of embodiment provided by way of illustration and with reference to the appended figures in which:

- figure 1 is a diagram of equipment involved in the implementation of the invention,
- figure 2 is a diagram of a terminal according to the invention; and
- figure 3 is a flowchart of a deletion operation according to the invention.

With reference to figure 1, the invention is presented within the context of an interactive television system, a system in which a terminal 11 is connected to a broadcast server or transmitter 12 and to a point-to-point server 13.

The link between the transmitter 12 and the terminal 11 is principally mono-directional. Said link can be a cable, radio relay or satellite link. The point-to-point server 13 is connected by a bi-directional link, for example a link from the public switched telephone network, to the terminal 11. The server 13 can also be connected to the transmitter 12.

The terminal can be an interactive television, but also a decoder provided for the digital video broadcast or provided for connection to the Internet.

Advantageously, the auxiliary program and the main program are broadcast simultaneously but only the latter program is displayed on the television. The auxiliary program can also be broadcast prior to the main program, but can only be displayed after the reception of the main

program to which it is related. If an analog broadcast system is used, the auxiliary program is place, for example, in the horizontal blanking intervals. However, the low bandwidth granted in this case does not allow the sending of animated video sequences, but only video pages.

During the broadcast of a main program, a marker such as an icon is displayed as an over-print on the screen. The user is thus informed that the auxiliary program is available. Usually said user accesses the auxiliary program by means of an activation command, which process will not be detailed here because it is part of the prior art.

The auxiliary program can be limited to an interactive program reference and an identifier of a service supplier by means of its Internet address known by the acronym URL (uniform resource locator). In this way, the memory of the terminal can contain a large number of references of interactive programs and offer them to the user. After the selection by the user, the terminal is connected to the specified address and downloads the interactive program into the memory of the terminal.

The auxiliary program can consist of an interactive service in the form of software.

Finally, the program can associate a URL identification and an interactive service.

With reference to figure 2, the terminal essentially comprises a processor 21 to which are connected a demultiplexer 22, a remote control sensor 23, a display screen 24, a random access memory 25, an archival storage 26 and a modem 27. The terminal also comprises a tuner 28 connected to the demultiplexer 22.

Said demultiplexer 22 extracts the auxiliary program from the signal provided to it by the tuner 28 in order to transmit it to the processor 21.

The sensor 23 sends the commands generated on a remote control device (not shown) to the processor 21.

The random access memory 25 is the scratch-pad memory of the processor 21 while the archival storage 26 is provided for storing various data, including the name of the auxiliary program. The modem 27 is used for connecting the processor 21 to the telephone network.

According to the invention, the processor 21 is provided for recording an auxiliary program. The detection of this program does not require any special explanation. It can be done by analysis of the horizontal blanking intervals, or by searching for a marker in the main program.

According to a first embodiment, all of the auxiliary programs are recorded successively, limited only by the memory capacity.

According to a second embodiment, the auxiliary programs are selected prior to their being recorded, the selection being performed according to any of the known techniques, particularly depending on the profile of the user.

For example, there is a case in which these programs comprise a descriptor, a series of words that provide information about the subject concerned.

In an initial phase, the user enters a list of key words into the archival storage 26. This data entry can be done by a real keyboard if the terminal has one, or by a virtual keyboard represented on the screen.

Thus, during the broadcast of an auxiliary program, the processor 21 begins by reading it in order to store it in the scratch-pad memory 25. The processor then searches to determine whether any of the key words is included the descriptor, and if so, it transfers the auxiliary program to the archival storage 26. Said archival storage 26 is preferably a flash or EEPROM type permanent memory to allow the recorded information to be saved after the terminal is turned off. Of course, in the context of this selection any combination of key words can be provided, particularly using the logical operators AND and OR.

When the auxiliary program associates a URL identification and an interactive service, it may be sufficient to record the identification alone.

Moreover, because the archival storage 26 has a limited capacity, it is advisable to delete old auxiliary programs regularly in order to be able to record new ones.

The simplest solution consists of deleting the oldest recordings. However, when the descriptor of a program includes an end-of-validity date for the respective interactive service, it is preferable to use this information.

With reference to figure 3, the processor 21 systematically tests for out-of-date services. It selects the first auxiliary program in the archival storage 26, extracts therefrom the end-of-validity date, then deletes said program from the memory if that date has been exceeded. It then selects the second auxiliary program to perform the same operations, and thus until it reaches the last program.

An essential objective of the invention consists of allowing a user to determine what auxiliary programs are recorded. The processor 21 is therefore provided to respond to a query command, a specific command from the user who wishes to access one of said programs.

According to a first option, the query command triggers a sequential scrolling of the various auxiliary programs.

According to a second option, a title or brief description is associated with each recorded auxiliary program. This can be data incorporated in the program, for example in the descriptor. In this case, the processor 21 begins by displaying on the screen the sequence of available titles, for example in the form of icons. When all of the titles cannot be displayed simultaneously, a special icon can be provided the function whereof is to make the sequence of titles appear.

On said presentation screen, the user chooses the auxiliary program to which he wishes to have access by selecting a particular icon. The processor 21 detects the selected icon and transmits the respective auxiliary program by displaying it on the screen 24 if it involves pages of a video sequence. It can then offer the deletion of the program to the user. If only the address of the auxiliary program has been communicated to the television receiver, said receiver must call up at that address, via the reverse channel, the corresponding network and send a request to download the specified auxiliary program. The descriptor is broadcast in the service information tables.

Advantageously, this phase of querying recorded programs can be used to trigger the operation described above of partially erasing the archival storage 26.

The invention therefore offers the possibility of delaying the display of an auxiliary program with respect to its broadcast. This feature makes it possible to provide for the broadcast of an auxiliary program, i.e. to broadcast it when one does not wish the respective interactive service to be accessible yet. A validity start date is simply associated with the program concerned, for example in the descriptor. In this case, the processor 21 verifies that the validity start date of an auxiliary program has been reached before starting its presentation to the user.

The embodiments of the invention presented above have been selected for their specific nature. However, it would not be possible to list exhaustively all embodiments that this invention covers. In particular, any described means can be replaced by an equivalent means without going beyond the scope of the present invention.

CLAIMS

1. Method of managing auxiliary programs that are broadcast along with main programs, comprising:

- a step of detecting auxiliary information transmitted by a broadcast network,
- a step of extracting said auxiliary information,
- a step of storing said auxiliary information.

characterized in that it further comprises a step of displaying the auxiliary information during the broadcast of the main program, the step of displaying the information being performed beginning on the validity start date, the displayed information allowing the user to access the respective auxiliary program.

2. Method as claimed in claim 1, characterized in that it includes a step of broadcasting auxiliary programs on a broadcast network.

3. Method as claimed in claims 1 or 2, characterized in that the auxiliary information includes the auxiliary programs.

4. Method as claimed in claim 1, characterized in that the auxiliary information includes references for locating said auxiliary programs.

5. Method as claimed in claim 4, characterized in that the locating reference includes an access path to a data element stored on a server and in which the downloading is performed with the aid of the locating reference when an auxiliary program is selected by the user.

6. Method as claimed in any one of claims 1 to 5, characterized in that the extraction step includes a step of selecting auxiliary program according to the value of a descriptor field broadcast in the auxiliary program.

7. Method as claimed in any one of the preceding claims, characterized in that if the broadcast auxiliary information includes both an auxiliary program and its locating reference, and if a part of the memory containing this auxiliary information must be freed up, then the auxiliary program is deleted by priority, while its locating reference is kept.

8. Receiver of programs accessible by a broadcast network comprising means for implementing the method according to any one of the preceding claims.

[glossary of flowchart terms used in figure 3]

SÉLECTION PREMIER PROGRAMME AUXILIAIRE	
EXTRACTION DATE FIN DE VALIDITÉ	EXTRACT END-OF-VALIDITY DATE
DATE FIN DE VALIDITÉ DEPASSÉE?	END-OF-VALIDITY DATE EXCEEDED?
OUI	YES
EFFACEMENT DU PROGRAMME AUXILIAIRE	DELETE AUXILIARY PROGRAM
RESTE-T-IL D'AUTRES PROGRAMMES AUXILIAIRES?	ARE THERE OTHER AUXILIARY PROGRAMS?
OUI	YES
SÉLECTION PROGRAMME AUXILIAIRE SUIVANT	SELECT NEXT AUXILIARY PROGRAM
NON	NO
FIN	END

[Please see source document for International Search Report]